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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,846	12/24/2001	Chang-Gang Zhang	13166RRUS01U	4165

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EXAMINER

MURPHY, RHONDA L

ART UNIT	PAPER NUMBER
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2616

DATE MAILED: 04/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/035,846

Applicant(s)

ZHANG ET AL.

Examiner

Rhonda Murphy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This communication is responsive to the amendment filed on 1/23/06.
Accordingly, claims 1-20 are currently pending in this application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 8 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "may be" shall be rephrased in claim 8, lines 7 and 11 and in claim 14, lines 16 and 19.

Claim Objections

3. Claims 9 and 18 are objected to because of the following minor informalities:

In claim 9, line 2, "terminal" shall be replaced with "terminals".

In claim 18, line 2, "terminate" shall be replaced with "terminates".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (US 6,160,798).

Regarding claim 1, Reed teaches assigning a plurality of Walsh Codes to a mobile terminal, wherein each of the plurality of assigned Walsh Codes corresponds to a cell or sector providing forward link transmissions to the mobile terminal (col. 1, lines 19-26); determining that an insufficient number of unused Walsh Codes are available (col. 1, lines 40-52); and limiting the number of cells or sectors providing forward link transmissions to the mobile terminal to thereby limit the number of Walsh Codes being employed in servicing the mobile terminal (col. 8, lines 14-36).

Reed fails to explicitly disclose a second plurality of Walsh Codes, wherein the second plurality of Walsh Codes is less than the first plurality of Walsh codes.

However, since Reed teaches limiting the number of forwarding links servicing the mobile terminal and thus limiting the number of Walsh codes, it would have been obvious to one skilled in the art to provide a second plurality of Walsh codes that is less than the first plurality of Walsh codes since when at least one forwarding link is removed, the Walsh code associated with that forwarding link is also removed.

Therefore providing a lower number of Walsh codes servicing the mobile terminal.

Regarding claim 2, Reed teaches limiting the number of cells or sectors providing forward link transmissions to the mobile terminal to thereby limit the number of Walsh Codes being employed in servicing the mobile terminal comprising terminating at least

one forward link serviced by the number of cells or sectors for the mobile terminal (col. 8, lines 19-27).

Regarding claim 3, Reed teaches a method wherein terminating at least one forward link serviced by the number of cells or sectors for the mobile terminal further comprises: determining a weakest forward link serviced by the cells or sectors for the mobile terminal (col. 4, lines 19-32); and terminating the weakest forward link serviced by the number of cells or sectors for the mobile terminal (col. 8, lines 46-58).

Regarding claim 4, Reed teaches a method wherein the weakest forward link is determined based upon the strength of corresponding pilot signals, as measured and reported by the mobile terminal (col. 3, lines 25-35).

Regarding claim 5, Reed teaches a method wherein a plurality of reports of pilot signal strengths are used in conjunction with mathematical operations to determine the weakest forward link (col. 9, lines 31-39).

An averaging operation is a type of mathematical operation. Since Reed teaches mathematical operations to determine the weakest forward link, it would be obvious to include an averaging operation as a type of mathematical operation, in order to conclude the weakest forward link by obtaining an average of pilot signal strengths.

Regarding claim 6, Reed teaches limiting the number of cells or sectors providing forward link transmissions to the mobile terminal to thereby limit the number of Walsh Codes employed in servicing the mobile terminal comprises: terminating a weakest forward link when the mobile terminal is in two-way hand-off (col. 3, lines 47-55).

Reed fails to explicitly disclose five-way hand-off and terminating two weakest forward links when the mobile terminal is in six-way hand-off.

However, multiple-way handoffs are known in the art and therefore, would be obvious to include multiple-way handoffs for terminating multiple weak forwarding links, so as to eliminate the weakest links in order to increase spreading codes availability.

Regarding claim 7, Reed teaches a method wherein limiting the number of cells or sectors providing forward link transmissions to the mobile terminal to thereby limit the number of Walsh Codes being employed in servicing the mobile terminal includes terminating a forward link in a sector that has reached a Walsh code availability threshold (col. 1, lines 40-52).

Regarding claim 8, Reed teaches assigning a plurality of Walsh Codes to each of a plurality of serviced mobile terminals, wherein each of a plurality of Walsh Codes servicing a mobile terminal corresponds to respective forward link transmissions (col. 1, lines 19-26); determining that an insufficient number of unused Walsh Codes are available (col. 1, lines 40-52); and limiting the number of forward links that may be employed for each of the plurality of mobile terminals to thereby limit the number of Walsh Codes being employed by (col. 8, lines 14-36): terminating at least one forward link for at least some of the plurality of mobile terminals (col. 8, lines 19-27).

Reed fails to explicitly disclose limiting the number of forward links that may be employed for hand-off. However, a limit to the number of links handed-off would be necessary, in order to properly perform hand-off and indicate the specific links requiring hand-off.

Regarding claim 9, Reed teaches the method wherein terminating at least one forward link for at least some of the plurality of mobile terminals comprises: for each of the plurality of mobile terminals that are being serviced by a number of forward links that exceeds a forward link limit, determining a respective weakest forward link servicing the mobile terminal (col. 4, lines 19-32); and terminating the respective weakest forward link servicing the mobile terminal (col. 8, lines 46-58).

Regarding claim 10, Reed teaches the method wherein the respective weakest forward link is determined based upon the strength of corresponding pilot signals, as measured and reported by the mobile terminal (col. 3, lines 25-35).

Regarding claim 11, Reed teaches the same limitation described above in the rejection of claim 5.

Regarding claim 12, Reed teaches the same limitation described above in the rejection of claim 6.

Regarding claim 13, Reed teaches the method wherein a forward link in a sector that has reached a Walsh code availability threshold is terminated (col. 1, lines 40-52).

6. Claims 14 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (US 6,160,798) in view of Wakuta et al. (US 2005/0221828).

Regarding claim 14, Reed teaches a base station controller that supports Code Division Multiple Access (CDMA) operations, the base station controller (Fig. 1, 42) comprising: at least one base station interface that interfaces the base station controller to a plurality of base stations (the interfaces must exist to connect communication lines

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44 to multiple base stations); and at least one digital processor (controller 46) coupled to the base station interface; and a plurality of software instructions that are executed by the processor, the plurality of software instructions comprising: software instructions (col. 3, lines 22-23) that, upon execution by the processor, cause the base station controller to, assign a plurality of Walsh Codes to each of a plurality of serviced mobile terminals, wherein each of a plurality of Walsh Codes servicing a mobile terminal corresponds to respective forward link transmissions (col. 1, lines 19-26); software instructions that, upon execution by the processor, cause the base station controller to determine that an insufficient number of unused Walsh Codes are available (col. 1, lines 40-52); and software instructions that, upon execution by the processor, cause the base station controller to limit the number of forward links that may be employed by each of the plurality of mobile terminals to thereby limit the number of Walsh Codes being employed by terminating at least one forward link for at least some of the plurality of mobile terminals (col. 8, lines 14-36, 19-27).

Reed fails to explicitly disclose a Mobile Switching Center (MSC). It is known in the art that MSCs are connected to base station controllers, which inherently include an interface for connecting the two units.

However, Wakuta discloses an MSC interface that interfaces the base station controller to a MSC (Fig. 7, interface must exist in order to communicate with the base station controller).

In view of this, it would have been obvious to one skilled in the art to include an MSC interface, so as to provide connection means to the base station.

Furthermore, Reed fails to explicitly disclose limiting the number of forward links that may be employed for hand-off. However, a limit to the number of links handed-off would be necessary, in order to properly perform hand-off and indicate the specific links requiring hand-off.

Regarding claim 15, Reed teaches the base station controller of claim 14, wherein in terminating a forward link participating for a mobile terminal, the base station controller determines a respective weakest forward link for the mobile terminal and terminates the respective weakest forward link (col. 3, lines 56-64; col. 4, lines 39-50).

Regarding claim 16, Reed teaches the base station controller of claim 15, wherein the base station controller determines the respective weakest forward link based upon the strength of corresponding pilot signals, as measured and reported by the mobile terminal (col. 3, lines 56-64).

Regarding claim 17, Reed teaches the base station controller of claim 16, wherein a plurality of reports of pilot signal strengths are used in conjunction with mathematical operations to determine the weakest forward link (col. 9, lines 31-39).

An averaging operation is a type of mathematical operation. Since Reed teaches mathematical operations to determine the weakest forward link, it would obvious to include an averaging operation as a type of mathematical operation, in order conclude the weakest forward link by obtaining an average of pilot signal strengths.

Regarding claim 18, Reed teaches the base station controller of claim 14, wherein in terminating at least one forward link for at least some of the plurality of mobile terminals

the base station controller terminates a weakest forward link for each mobile terminal being serviced by two forward links (col. 3, lines 47-55).

Reed fails to explicitly disclose five forward links and terminating two weakest forward links for each mobile unit being serviced by six forward links.

However, multiple forward links are known in the art and therefore, would be obvious to include multiple forward links for terminating multiple weak forwarding links, so as to eliminate the weakest links in order to increase spreading codes availability.

Regarding claim 19, Reed teaches the base station controller of claim 14, wherein a forward link in a sector that has reached a Walsh code availability threshold is terminated (col. 1, lines 40-52).

Regarding claim 20, Reed teaches the base station controller of claim 14, wherein the base station controller operates consistent with IS-95A, IS-95B, 1xRTT, or 1xEV-DO operating standards (col. 1, lines 28-31).

Response to Arguments

7. Applicant's arguments filed 1/23/06 have been fully considered but they are not persuasive. Applicant argues the Reed reference is related to a power limited base station and teaches a mobile to drop its soft handoff connection with a resource limited base station by changing its handoff parameters and transferring soft handoff links to base stations that are not resource limited. Applicants claim language recites "limiting the number of cells or sectors providing forward link transmissions to the mobile terminal to thereby limit the number of Walsh codes being employed in servicing the

mobile terminal." Examiner would like to direct the Applicant to col. 8, lines 14-36 in which Reed describes a subscriber unit removing a handoff link with a base station that is short of available user spreading codes. Reed's method limits the number of handoff links and thereby limits the number of spreading codes servicing the subscriber unit. The Reed reference teaches the claimed limitations and the rejection has been maintained.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rhonda Murphy whose telephone number is (571) 272-3185. The examiner can normally be reached on Monday - Friday 8:00 - 4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rhonda Murphy
Examiner
Art Unit 2616

RM



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